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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/362,485	07/28/99	FLOHE L	29473/35834

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EXAMINER	
JOHANNSEN, D	
ART UNIT	**PAPER NUMBER**
1655	14

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/362,485	Applicant(s) Flohe et al
	Examiner Diana Johannsen	Group Art Unit 1655

☒ Responsive to communication(s) filed on *Nov 17, 2000*.

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-8 and 10-18* is/are pending in the application.

Of the above, claim(s) *2-8 and 10-18* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

FINAL ACTION

1. This action is in response to paper no. 13, filed November 17, 2000. Claims 1-8 and 10-18 are pending. Claims 1, 2, 10, and 14 have been amended, and claims 2-8 and 10-18 have been withdrawn from consideration. Claim 1 is now under consideration. The amendments and arguments have been thoroughly reviewed, but are not persuasive for the reasons that follow. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims. **This action is FINAL.**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restriction

3. Claims 2-8 and 10-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10.

4. It is noted that a response to applicants traversal in paper no. 10 was provided in the Office action of paper no. 11, and that the restriction requirement was deemed proper and made final in that Office action. With respect to applicants Request for Reconsideration in the Remarks of paper no. 13, it is further noted that applicants additional arguments are not persuasive. Although applicant has amended claims 2 and 10 to recite "an enzymatic test kit of said set according to claim 1" and "said DNA sequence of said set of claim 1", respectively, dependent

claims 2 and 10 are improper dependent claims, as the dependent claims as written only require a subset of the components of the set of claim 1 in the practice of the claimed methods (whereas a proper dependent claim includes all the limitations of the claim(s) from which it depend(s)). Claim 1 does not in fact link the claims depend therefrom, as neither the method claims of Group II nor the method claims of Group III require all the components of the set of claim 1. In other words, none of the present dependent claims meet the criteria discussed in applicants arguments (i.e., the claims are not dependent claims "which include all of the limitation of" a linking claim). Further, as was discussed in the Office action of paper no. 11, while the "enzymatic test kit" of claim 1 is disclosed as capable of use in the methods of Group II and the "DNA sequence" of claim 1 is disclosed as capable of use in the methods of Group III, the "set" of claim 1 is not disclosed as capable of use in either the methods of Group II or the methods of Group III. Additionally, as discussed below and in the Office action of paper no. 11, the specification as originally filed did not disclose a "set" as required by claim 1. Accordingly, **the restriction requirement is still deemed proper and is made FINAL.**

5. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

6. As was indicated in the Office action of paper no. 11, the specification contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set

forth in 37 CFR § 1.821(a) and (a)(2). However, the specification fails to comply with one or more of the requirements of 37 CFR § 1.821 through 1.825 because the claims and specification recite sequences that lack description by the appropriate sequence identifiers set forth in the "Sequence Listing" as required by 37 CFR § 1.821(d). See, for example, claim 1 and page 14. Appropriate corrections for compliance are required.

Claim Rejections - 35 U.S.C. § 112

THE FOLLOWING ARE NEW GROUNDS OF REJECTION NECESSITATED BY APPLICANTS AMENDMENTS TO THE CLAIMS:

7. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons stated below and in the Office action of paper no. 11. **It is noted that applicants amendment to claim 1 to include the recitation "under stringent conditions" necessitated the new grounds of rejection set forth herein.**

With respect to the rejection of claim 1 over the recitation of a "set" set forth in the Office action of paper no. 11, the response traverses the rejection on the following grounds. The response argues that "ample support for amended claim 1 is found in the examples and claims as originally filed". The response argues that "original claim 14 describes a 'method according to claim 2 and/or claim 10'" and that "Both claim 2 and claim 10 described a method for the

'diagnosis of tuberculosis and other mycobacterial infections'". The response asserts that "Thus, the original claims were directed to a method in which a combination of the enzymatic and DNA components of the set of claim 1 is employed". The response further argues that "the examples show use of both the enzymatic and the DNA components of the set of claim 1 on samples of the same strains of Mycobacteria" referring to pages 21-24 of the specification with respect to "alanine dehydrogenase enzymatic activity" and to pages 26-28 with respect to "alanine dehydrogenase gene fragments".

These arguments have been thoroughly considered but are not convincing for the following reasons. First, with respect to claim 14 as originally filed, it is noted that the claim provides a further limitation of the type of sample to be "used" in the different methods. The claim does not, e.g., provide that the two methods be combined in some manner into a single method, but merely indicates that the same type of sample may be employed in each method. While it is acknowledged that the enzymatic and nucleic acid based methods described in the specification share a common objective, the two methods are patentably distinct in that they require distinct and different method steps. There is no disclosure in the specification of a single method in which all of the steps are carried out or in which all of the reagents of the "set" of claim 1 are employed, or of a single method employing a combination of these two methods. While the responses states that "the original claims were directed to a method in which a combination of the enzymatic and DNA components of the set of claim 1 is employed", such a method was not in fact set forth in the originally filed claims or specification. The pages of the specification

referenced in applicants response (pages 21-24 and 26-28) exemplify two distinct methods having different process steps, rather than "a method in which a combination of the enzymatic and DNA components of the set of claim 1 is employed". Further, it is noted that claim 1 is drawn not to a method, but to a "set" comprising a combination of products. No such "set" was described or discussed in the originally filed specification. Further, the specification does not disclose any other product or entity that could be considered equivalent to a "set" as recited in claim 1 (e.g., the specification does not refer to a composition, a container, a kit, etc., or to any other product or combination of products, including all the components now set forth in claim 1). Accordingly, the specification does not provide basis for the "set" of claim 1.

Further the specification as originally filed does not provide basis for the limitation "under stringent conditions". This terminology is not employed in the specification. While applicant refers to pages 24-28 of the specification as providing basis for this amendment, no mention of "stringent conditions", or of any type of "stringency", is present on pages 24-28 or elsewhere in the specification. Accordingly, the recitation of this limitation in amended claim 1 constitutes new matter.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for the reasons stated below and in the Office action of paper no. 11.

Claim 1 is indefinite over the recitation of the phrase "set...comprising....an enzymatic test kit....and..a nucleic acid". The response traverse the rejection on the following grounds. The

response argues that "Each of the chemical components of the set is described by its chemical name or structural, and the overall function of the set...is also recited in claim 1". The response states that 'The set need not take a particular structural form; it could encompass, e.g., a packaged kit....or separately packaged kits....or a laboratory set up". These arguments have been thoroughly considered but are not convincing. First, the present rejection does not relate to indefiniteness of the terminology used to describe the "chemical components of the set", but to the properties of the "set" itself. Second, as discussed in the Office action of paper no. 11, a definition for the term "set" as it pertains to the invention is not provided in the specification, and it is unclear as to what is meant and encompassed by this language. While applicant has provided examples of what might constitute a set in the response of paper no. 13, no such examples were provided in the specification. Further, there is no art recognized definition for the terminology "set" as it would pertain to a combination of products. Accordingly, it is unclear as to how a requirement that an "enzymatic test kit" and a "nucleic acid" be present in a "set" would actually limit the claim. This rejection is maintained.

THE FOLLOWING ARE NEW GROUNDS OF REJECTION NECESSITATED BY APPLICANTS AMENDMENTS TO THE CLAIMS:

Claim 1 is indefinite over the recitation of the limitation "the DNA sequence selected from the group consisting of". There is insufficient antecedent basis for this limitation in the claim.

Claim 1 is indefinite over the recitation of the limitation "sequences that are hybridizable therewith under stringent conditions". Hybridization conditions of a variety of stringencies (e.g.,

high stringency, low stringency, moderate stringency) are known in the art. However, neither the specification nor the prior art provide a clear and limiting definition of the language "stringent conditions". Accordingly, it is unclear as to whether applicant may intend for this language to refer to conditions of any stringency, whether this language is intended to limit the claims to a particular stringency (e.g., high stringency), etc. Thus, the use of this language in the claim renders the metes and bounds of the claim unclear. The claim should be amended such that it clearly apprises one of skill in the art as to the types of molecules encompassed by the claim.

Claim Rejections - 35 U.S.C. § 103

9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al (U.S. Patent No. 5,559,016 [9/1996]) in view of Ahern (The Scientist 9(15):20 [7/1995]), for the reasons stated in the Office action of paper no. 11.

The response traverses the rejection on the following grounds. The response argues that "the nucleic acids of the set of claim 1 are not merely fragments of an L-alanine dehydrogenase gene from any microorganisms but instead are specific nucleic acid fragments that have the unexpected property of being able to distinguish between pathogenic and non-pathogenic strains of *Mycobacteria*". The response states that "Claim 1 as amended clarifies that the nucleic acid components of the kit are hybridizable with the recited sequences "under stringent conditions". The response further argues that "it would not be possible to use the nucleic acids disclosed in the Katsumata patent to distinguish between pathogenic and non-pathogenic organisms". Finally, the

response argues that there is no suggestion to combine Katsumata with Ahern, and that "even if combined, the two references do not render obvious the claimed invention" because Ahern "does not suggest the unexpected property of the nucleic acids of the set of claim 1".

These arguments have been thoroughly considered but are not convincing for the following reasons. The present claim is not limited to, e.g., particular probes with which unexpected results were obtained. Rather the claims encompass "partial sequences" of the recited sequences, as well as "sequences that are hybridizable therewith under stringent conditions". A single nucleotide could constitute a "partial sequence", and the addition of the limitation "under stringent conditions" does not further limit in the claim, as there is no suggestion in the specification that the language "stringent conditions" is intended to be equivalent to conditions of any particular stringency (e.g., high stringency). Further, as the claim has been amended to recite the language a "nucleic acid consisting essentially of" the recited sequences, and as the specification does not provide a limiting definition of the language "consisting essentially of", the claim now encompasses any molecule comprising the sequences recited in the claim. Accordingly, the majority of the molecules now encompassed by the claim do not possess the "unexpected properties" asserted in Applicants response. Further, it is again noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. Further, as discussed in the Office action of paper no. 11, one would have been motivated to have modified the invention of Katsumata et al so as to have packaged any or all of the reagents

taught by Katsumata et al into a kit or "set" in order to have provided the reagents needed to perform Katsumata et al's method for producing alanine to practitioners in a convenient format for the advantages of efficiency and cost-effectiveness. The present claim recites the open transitional language "comprising", and is clearly not limited to a particular combination of reagents with which unexpected results were obtained. Accordingly, as the combined references of Katsumata et al and Ahern suggest all the limitations of present claim 1, this rejection is maintained.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al (Inf. Immun. 60(6):2317-2323 [6/1992]) in view of Ahern, for the reasons stated in the Office action of paper no. 11.

The response traverses the rejection on the following grounds. The response argues that "while the Andersen publication does disclose an (incorrect) nucleotide sequence of the L-alanine dehydrogenase gene of *Mycobacterium tuberculosis*, it does not teach the unexpected property of being able to distinguish between pathogenic and non-pathogenic strains of *Mycobacteria* and does not teach or suggest that it would have been possible to distinguish between non-pathogenic and pathogenic strains by means of such nucleic acids of the set of claim 1". Further, the response argues that "There is also no suggestion of motivation to combine Andersen with Ahern, and the two references even if combined do not suggest the unexpected property of the nucleic acids of the set of claim 1".

These arguments have been thoroughly considered but are not convincing for the following reasons. As was discussed in paragraph 9, above, the present claim is not limited to particular molecules or reagents with which unexpected results were obtained. Rather the claims encompass "partial sequences" of the recited sequences, as well as "sequences that are hybridizable therewith under stringent conditions". A single nucleotide could constitute a "partial sequence", and the addition of the limitation "under stringent conditions" does not further limit in the claim, as there is no suggestion in the specification that the language "stringent conditions" is intended to be equivalent to conditions of any particular stringency (e.g., high stringency). Further, as the claim has been amended to recite the language a "nucleic acid consisting essentially of" the recited sequences, and as the specification does not provide a limiting definition of the language "consisting essentially of", the claim now clearly encompasses any molecule comprising the sequences recited in the claim (including that of Andersen). Accordingly, the majority of the molecules now encompassed by the claim do not possess the "unexpected properties" asserted in Applicants response. Further, it is again noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. Further, as discussed in the Office action of paper no. 11, one would have been motivated to have modified the invention of Andersen et al so as to have packaged any or all of the reagents taught by Andersen et al into a kit or "set" in order to have provided the reagents needed to perform Andersen et al's methods to practitioners in a convenient format for the advantages of efficiency and cost-effectiveness. The

present claim recites the open transitional language "comprising", and is clearly not limited to a particular combination of reagents with which unexpected results were obtained. Accordingly, as the combined references of Andersen et al and Ahern suggest all the limitations of present claim 1, this rejection is maintained.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diana Johannsen whose telephone number is 703/305-0761. The examiner can normally be reached on Monday-Friday from 7:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached at 703/308-1152. The fax phone number for the Technology Center where this application or proceeding is assigned is 703/305-3014 or 305-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703/308-0196.

Diana Johannsen

February 21, 2001

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600